

Surge Reference 1 (SR1) and Continuous Reference 1 (CR1) is calculated as follows:

$$SR1 = GS = 2300 \text{ Watts}$$

$$CR1 = GC = 2000 \text{ Watts}$$

The generator monitor 10 has SR1 set to 2300-Watts and CR1 set to 2000-Watts. The generator monitor 10 is then installed in the sub panel socket.

This configuration includes a critical time monitor to the refrigerator's interrupt switch. Given the small 300-Watt difference between the generator surge capacity and the refrigerator surge load, the refrigerator may be held disabled for the duration of the power outage if so much as 310-Watts of clocks and lights are running. If the interrupt switch 20 were equipped with an audible alarm that signaled when the refrigerator had been disabled for the identified critical time, the homeowner is alerted and can turn off sufficient lights or appliances to increase the GAP levels sufficiently to cause the interrupt switch 20 supporting the refrigerator, to enable the refrigerator.

Assuming the automatic appliances above are listed in order of the homeowner's priorities, with running water being the first and most important, refrigeration second, a dry basement third and heat being last, the interrupt switches for these four appliances are given the priority settings in the table below.

Automatic Appliance	GAPS & GAPC Level	Interrupt Switch Priority (ISP)
Well Water Pump	1	1
Refrigerator	1	2
Basement Sump Pump	1	3
Heating System Motor	1	4

Once the interrupt switches have had a few appliance cycles to determine the surge and continuous loads of their appliances, the system is fully installed and operational.

3. In this example user displays are added to example 2. This allows the occasional use of a hairdryer, toaster or microwave.

Given the generator's capacity is small relative to the total load, SR1 and CR1 are again set at the generator's capacity. As in Example 2, just one set of GAP levels is used. The kitchen and bathroom each have a user display. When programming the user displays the surge and continuous loads in Table 3-A below, are measured and stored with appropriate labels or icons:

Manual Appliance	Programmed On Display in	Surge	Continuous
Hairdryer on Low	Bathroom	600 Watts	600 Watts
Hairdryer on Med	Bathroom	1200 Watts	1200 Watts
Hairdryer on High	Bathroom	1600 Watts	1600 Watts
Toaster	Kitchen	1000 Watts	1000 Watts
Microwave	Kitchen	700 Watts	700 Watts

**Table 3-A**

Table 3-B below shows the GAP levels resulting from just one of the Automatic Appliances running at once. By looking at the surge and continuous loads of the other appliances compared to the GAPS and GAPC levels, it can be determined which of the other appliances can start with a given appliance running. This calculation is basically the continuous load of the appliance subtracted from the SR1, resulting in GAPS and the same continuous load of the appliance subtracted from the CR1, resulting in GAPC.

<b>Automatic Appliance</b>	<b>Surge Load</b>	<b>GAPS</b>	<b>Continuous Load</b>	<b>GAPC</b>
Clocks, night lights etc.		N/A	200-Watts	N/A
Well Water Pump	1700-Watts	1650-Watts	650-Watts	1350-Watts
Refrigerator	2000-Watts	1600-Watts	700-Watts	1300-Watts
Basement Sump Pump	1700-Watts	1650-Watts	650-Watts	1350-Watts
Heating System Motor	900-Watts	1900-Watts	400-Watts	1600-Watts

**Table 3-B**

Table 3-B above shows that the interrupt switch 20 on the heating system is closed, enabling the heating system, when just one of the other automatic appliances is operating. This is because the heating system start up load of 900 Watts surge, is smaller than all the GAPs, and its continuous load of 400 Watts is smaller than all the GAPCs. Alternately if the heating system is running, then the interrupt switches 20 on the well water pump and sump pump are closed, enabling them and allowing them to activate if needed. However, the interrupt switch 20 on the refrigerator disables the refrigerator, given its surge is 2000-Watts, if the heating system motor or any of the other automatic appliances are running and applying their continuous load to the generator.

To evaluate which manual appliances have “Yes” or “Go” indications on the user display, the manual appliance surge loads in Table 3-A are compared to the GAPs levels in the Automatic Appliances in Table 3-B. It can be seen that any one of the manual appliances in Table 3-A can be turned on with any one of the automatic appliances running in Table 3-B. This is because the lowest GAPs of the manual appliances in table 3-B (1600 Watts